

AMENDMENTS TO THE ABSTRACT

Please amend the Abstract as follows:

ABSTRACT:

EVANESCENT WAVE SENSING APPARATUS AND METHODS USING PLASMONS

~~This invention is generally concerned with sensing apparatus, methods and techniques based upon cavity ring down spectroscopy (CRDS), in particular evanescent wave based cavity ring down plasmon resonance techniques.~~

~~An evanescent wave cavity based optical sensor is described. The sensor comprises — an optical cavity formed by a pair of highly reflective surfaces such that light within said cavity makes a plurality of passes between said surfaces, an optical path between said surfaces including a reflection from a totally internally reflecting (TIR) surface, said reflection from said TIR surface generating an evanescent wave to provide a sensing function; a light source to inject light into said cavity; and a detector to detect a light level within said cavity; and — wherein said TIR surface is provided with an electrically conducting material over at least part of said TIR surface such that said evanescent wave excites a plasmon within said material; — whereby a change in absorption of said evanescent wave due to a change in said plasmon excitation is detectable using said detector to provide said sensing function.~~

We describe sensing apparatus using evanescent-wave based optical cavity ring-down plasmon resonance techniques. An optical cavity is formed by a pair of highly reflective surfaces, said an optical path between said surfaces including a reflection from a totally internally reflecting (TIR) surface, the reflection from said TIR surface generating an evanescent wave. The TIR surface is provided with electrically conducting material such that the evanescent wave excites a plasmon within the material. A change in absorption of evanescent wave due to a change in said plasmon excitation is detectable to provide a sensing function. Advantageously light of two different wavelengths straddling the plasmon excitation is employed. Preferably the sensor is a fibre-optic evanescent wave surface plasmon sensor.